PENETRATING WOUNDS OF THE ABDOMEN.[1]

REPORT OF SIX CASES OF GUNSHOT AND STAB WOUNDS OF THE ABDOMEN.

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IN the past eighteen months, six cases of penetrating wounds of the abdomen have come under the writer's personal observation. Five were pistol-shot wounds of the abdomen and one was a case of stab wound of the abdomen.

CASE I.—*Penetrating Stab Wound of the Abdomen; Wound of the Cæcum; Extensive Fæcal Extravasation; Laparotomy; Recovery.*

J. H. M., aged twenty years, was brought to the City Hospital in a baggage-car, from Washington, Pa. When visited at the B. and O. Station he was found to be suffering some shock, and was lying in a pool of blood and fæcal matter; his torn abdomen was covered with a filthy coffee sack.

On the operating-table a ragged wound was found in the right iliac region, just below and a little external to McBurney's point. Enlargement of this wound revealed an opening about an inch in length penetrating the cæcum. It was learned that the vulnerating weapon was a kitchen carving-knife, which accounted for the large and ragged nature of the wound. In the carefully made peritoneal toilet a quantity of fæces and clotted blood was removed. The wound in the viscus was closed with a double row of Lembert sutures, a large glass drainage tube was inserted in the direction of the pelvis, and several cigarette drains were advantageously placed. The wound was closed in the usual way. Patient made an uneventful recovery.

CASE II.—*Pistol-shot Wound of the Iliocostal Space; No Evidence of Abdominal Penetration; Expectant Treatment; Recovery without Surgical Intervention.*

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T. H., aged thirty-four years, saloon-keeper, on the night of July 4, 1903, was shot with a .38-caliber ball at close range. The ball entered the iliocostal region on the left about one inch above the crest of the ilium.

The location of the wound, the probable course of the bullet, the absence of hæmaturia or any significant signs, and the recognition of the fact that probing is fallacious and harmful, lead to expectant and conservative measures in this case.

The skiagraph picture was unsatisfactory and failed to reveal the location of the ball.

The patient recovered without operation, and is in good health to-day.

While Case II was probably not a wound penetrating the abdomen, however, because of the location of the traumatism and the speedy recovery without symptoms, it was not thought out of place to include it in this series of cases.

CASE III.—*Pistol-shot Wound of the Abdomen; Nine Perforations of the Jejuno-ileum; Abdominal Section Three Hours after the Shooting; Recovery.*

A. G., aged thirty years, mill-worker, married, a resident of Martin's Ferry, and a patient of Dr. Hervey. On admission to the City Hospital on the night of June 2, 1903, patient was in shock, and an examination revealed a wound of the abdomen about two and a half inches above and a little to the left of the umbilicus.

An incision about six inches in length was made with the wound marking the mid-point. On opening the cavity of the peritoneum, it was evident that much damage had been done to the small intestine, as there was blood, fæcal matter, and some food stuff in every direction.

Many gallons of decinormal salt solution were used in cleansing the abdomen. All hæmorrhage was arrested and the openings in the intestine and mesentery were closed. The glass tube and gauze wicks were used for drainage in this case as in Case I. In one place the ball had torn the long diameter of the gut, seriously compromising the integrity of the viscus, over an area of two and a half inches, but this was repaired without resection.

The duration of the operation was almost three hours; patient left the table with a pulse of 140 and subnormal temperature.

The tube was removed on the fifth day; the first bowel movement was on the fourth day; no food passed his lips for forty-eight hours; after that time iced panopepton seemed to satisfy his craving for nourishment until the end of the first week. Patient's recovery was most gratifying, his temperature never going beyond 99½° F. He was discharged cured July 9, five weeks from the day he was shot.

CASE IV.—*Pistol-shot Wound of Abdomen; Slight Laceration of Liver; Non-penetrating Wound of the Ascending Colon; Laparotomy; Recovery.*

W. B., aged twenty-two years, negro waiter, was admitted to the City Hospital November 29, 1903, suffering with two pistol-shot wounds of the abdomen. There was an unusual amount of pain and well-marked muscular rigidity.

Patient was under the anæsthetic within one hour of the time of the shooting. On examination, one wound was found to enter the soft parts at the free border of the ribs on the left side in the mammary line. The course of this wound had every appearance of having penetrated the abdomen, but a median explorative incision in the epigastrium demonstrated that the ball had tunnelled beneath the muscles transversely and lay under the cartilage of the seventh rib on the right, where it was easily removed.

The second ball broke the cartilage of the ninth rib on the right, entered the abdomen, lacerated the outer surface of the right lobe of the liver; it severed completely one of the appendices epiploicæ, the base of which was bleeding rather freely. There was also a non-penetrating wound of the ascending colon, extending through the muscular coat. The necessary repair was made, all bleeding arrested, and drainage applied as in the previous cases. Recovery complete and uneventful.

CASE V.—*Pistol-shot Wound of the Abdomen; Beginning Diffuse Septic Peritonitis; Thirteen Perforations of the Intestine; Laparotomy Twenty Hours after the Shooting; Recovery.*

W. K., negro, aged eighteen years, was brought to the City Hospital, from Fairport, Ohio, by Dr. Walker, of St. Clairsville, December 25, 1903. On admission, pulse was 120 and of poor quality; respirations somewhat labored and costal; temperature, 102° F. The abdominal muscles were hard; there was some tympany. Patient was unable to retain anything on his stomach for several hours before admission. He had been shot by an Italian the day

before, the ball entering the abdomen one inch below the umbilicus, almost in the median line.

Under ether anæsthesia, an ample incision was made in the median line.

On opening the peritoneal cavity, it was evident that there had been considerable loss of blood, and this was lying in puddles with half-digested food and fæcal matter.

Already a progressive fibrinopurulent peritonitis was beginning to show itself, in flakes of tenacious yellowish material deposited over the surface of the intestinal coils. Thirteen perforations were found and repaired, using a double row of Lembert sutures for each opening.

The toilet of the abdominal cavity and carefully directed drainage were practised as in the previous cases.

It is interesting to reflect with Douglas ("Surgical Diseases of the Abdomen," p. 17) that the peritoneal cavity into which this poisonous material is suddenly deposited is lined with a membrane which is tunnelled with measureless lymph and blood tubes, and that this membrane is in extent perhaps as great as the whole integument of the body, and capable of absorbing in a single hour from 3 to 8 per cent. of the entire body weight; hence the call for immediate interference in all of these cases.

The reason for the delay in this case was, however, unavoidable; the accident having occurred remote from a railroad and many miles from any medical aid.

The drainage tube was removed on the sixth day, and recovery was complete and uninterrupted. Patient was dismissed well in one month from the day he was admitted.

CASE VI.—*Pistol-shot Wound of the Abdomen; Eight Perforations of the Intestines; Profuse Hæmorrhage and Shock on Admission; Laparotomy; Death.*

J. C., aged twenty-six years, Italian, was shot by a policeman at Bellaire, Ohio, January 10, 1903. He was admitted to the City Hospital, about four hours after the shooting, in profound shock, with a bullet wound two inches below and to the right of the umbilicus.

Under chloroform narcosis the abdomen was opened, and there immediately gushed out a quantity of blood.

The hæmorrhage was from the mesosigmoid and was soon arrested, but not until the patient had been almost exsanguinated.

There were six perforations of the intestine, but very little escape of intestinal contents.

The necessary repair was made in this case and every effort made to restore the depleted circulation, but all to no avail. The patient never rallied from the original depression, dying in about twenty hours after admission.

Certain conclusions seem to be evident in reviewing the histories of a series of cases of this kind:

First, recognizing that visceral injury follows in 97 per cent. (Douglas) of penetrating gunshot wounds of the abdomen, immediate laparotomy, with a liberal incision, should be practised in every such case.

Second, the symptoms exhibited by the patient, the location of the wound, and the course of the bullet should rather be used for determining the presence or absence of penetration, as the use of the probe is not only harmful, but may lead to false conclusions.

Third, well-directed drainage in all cases in which there has been visceral perforation is of the greatest importance.